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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,172	05/24/2001	Dan Maydan	005926	4582

32588 7590 06/11/2003

APPLIED MATERIALS, INC.  
2881 SCOTT BLVD. M/S 2061  
SANTA CLARA, CA 95050

EXAMINER
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KUNEMUND, ROBERT M

ART UNIT	PAPER NUMBER
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1765

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DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/866,172

Applicant(s)

MAYDAN ET AL.

Examiner

Robert M Kunemund

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7. 6) ☐ Other:

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 to 6, 9, 12 to 14, 16, 17, 20 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liaw et al in view of Pogossian et al.

The Liaw et al reference teaches a method of depositing multi-layers. On a substrate, a layer of silicon-germanium is deposited by low-pressure chemical vapor deposition. The silicon source is silane. The germanium concentration increases in the height of the layer. A layer of constant composition SiGe is deposited on the first layer. Then a third layer of graded SiGe is deposited where the germanium concentration is decreased during the height of the layer, note, entire reference. The prior art differs from the instant claims in the addition cladding layer of silicon and no intervening layers.

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However, Pogossian et al reference teaches a SiGe device where silicon cladding layers are deposited below and above the graded layers, note, figure 3. It would have been obvious to one of ordinary skill in the art to modify the Liaw et al process in view of the Pogossian et al reference to add silicon cladding layers in order to increase the optical properties of the SiGe layers.

Claims 7, 8, 10, 11, 18, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liaw et al in view of Pogossian et al.

The Liaw et al and Pogossian et al references are relied on for the same reasons as stated, supra, and differ from the instant claims in the germanium content. However, in the absence of unexpected results, it would have been unobvious to one of ordinary skill in the art to determine through routine experimentation the optimum, operable germanium contents in the graded layers in order to obtain the desired properties.

Claims 15, 22 to 50, 57 to 59 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liaw et al in view of Pogossian et al.

The Liaw et al and Pogossian et al references are relied on for the same reasons as stated, supra, and differ from the instant claims in the patterning of the deposition. However, in the absence of unexpected results, it would have been unobvious to one of ordinary skill in the art to determine through routine experimentation the optimum, operable patterning of the growth in the combine prior art in order to create the desired optical path.

Claims 51 to 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liaw et al in view of Pogossian et al.

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The Liaw et al and Pogossian et al references are relied on for the same reasons as stated, supra, and differ from the instant claims in the programming. However, in the absence of unexpected results, it would have been unobvious to one of ordinary skill in the art to determine through routine experimentation the optimum, operable programming of the growth in the combine prior art in order to create a program to run the process as a constant.

*Response to Applicants' Arguments*

Applicant's arguments filed March 3, 2003 have been fully considered but they are not persuasive.

The 102 rejection has been withdrawn in view of the amendment to the claims.

In response to applicant's argument that Pogossian et al is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the references both teach graded layer growth and efforts to reduce dislocations.

Applicants' argument concerning patterning the substrate is noted. However, the patterning of substrates and then growing layers is well known practice in the art. Thus, it would have been obvious to one of ordinary skill in the art to pattern the substrate and then grow the graded layers.

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**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M Kunemund whose telephone number is 703-308-1091. The examiner can normally be reached on 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ben Utech can be reached on 703-308-3636. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

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RMK

June 11, 2003



ROBERT KUNEMUND  
PRIMARY EXAMINER